

6N 3E 36

CL 317

1 SITE ID NO										HAER INVENTORY										Historic American Engineering Record Department of the Interior, Washington, D.C. 20240									
2 INDUSTRIAL CLASSIFICATION Bridges, Trestles, and Aqueducts										3 PRIORITY 1										4 DANGER OF DEMOLITION? (SPECIFY THREAT) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN									
Suspension: steel										5 DATE 1932/57										6 GOVT SOURCE OF THREAT OWNER ADMIN									
#503/26 503000278300										7 OWNER/ADMIN State Department of Transportation										9 OWNER'S ADDRESS Highway Administration Building Olympia, Washington 98504									
8 NAME(S) OF STRUCTURE Yale Bridge										10 STATE COUNTY WA 011										COUNTY NAME Clark/COWLITZ									
11 SITE ADDRESS (STREET & NO.) Crossing: Lewis River 19.8 North Junction State Route 502										CITY/VICINITY Yale										CONG DIST 04									
12 EXISTING SURVEYS <input type="checkbox"/> NR <input type="checkbox"/> NHL <input type="checkbox"/> HABS <input type="checkbox"/> HAER-I <input type="checkbox"/> HAER <input type="checkbox"/> NPS <input type="checkbox"/> CLG <input type="checkbox"/> CONF <input type="checkbox"/> STATE <input type="checkbox"/> COUNTY <input type="checkbox"/> LOCAL <input type="checkbox"/> OTHER										13 SPECIAL FEATURES (DESCRIBE BELOW) <input type="checkbox"/> INTERIOR INTACT <input type="checkbox"/> EXTERIOR INTACT <input type="checkbox"/> ENVIRONS INTACT										14 UTM ZONE EASTING 10548680 NORTHING 5089700 SIGN									
15 CONDITION 70 <input type="checkbox"/> EXCELLENT 71 <input type="checkbox"/> GOOD 72 <input type="checkbox"/> FAIR 73 <input type="checkbox"/> DETERIORATED 74 <input type="checkbox"/> RUINS 75 <input type="checkbox"/> UNEXPOSED 76 <input type="checkbox"/> ALTERED 82 <input type="checkbox"/> DESTROYED 85 <input type="checkbox"/> DEMOLISHED										16 INVENTORIED BY Lisa Soderberg										AFFILIATION HAER/Washington State Bridge Inventory									
17 DESCRIPTION AND BACKGROUND HISTORY INCLUDING CONSTRUCTION DATE(S) HISTORICAL DATE(S) PHYSICAL DIMENSIONS MATERIALS EXTANT EQUIPMENT AND IMPORTANT BUILDERS ENGINEERS ETC In 1932, Clark and Cowlitz County jointly constructed a short-spanned steel suspension bridge across the Lewis River to replace a steel truss that had been demolished as a result of the construction of the Ariel Dam. Because the back-water from the dam created a depth of 90 feet at the bridge site, it made it unusually difficult to build falsework, a prerequisite for the construction of the traditional type of highway bridge. Consequently, it was necessary to turn to other, less conventional solutions to forge the river. Originally, a 532 foot structure was built which consisted of a 300 foot steel truss span supported by 2 7/8 inch galvanized steel cables suspended from two 332 foot steel towers. The 17 foot roadway is carried 50 feet above high water. The 20 panels of the steel stiffening truss are made up of rolled H sections, and have a depth of 7 feet 6 inches. In 1957 five 30 foot steel beam approach spans were added. In order to simplify the erection of the span, a number of innovative details were developed. The four										DATE August 1979										(CONT OVER)									
18 ORIGINAL USE vehicular										PRESENT USE vehicular										ADAPTIVE USE									
19 REFERENCES - HISTORICAL REFERENCES PERSONAL CONTACTS AND OTHER State Department of Transportation Files. H.O. Blair, "Short-Span Suspension Bridge Uses Prestressed Rope Cables," Engineering News-Record, 20 July 1933, pp. 70-71.										20 URBAN AREA 50 000 POP OR MORE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO										21 NPS REGION N W									
22 PUBLIC ACCESSIBILITY <input type="checkbox"/> YES LIMITED <input checked="" type="checkbox"/> YES UNLIMITED <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN										23 EDITOR INDEXER										(CONT OVER)									
24 LOCATED IN AN HISTORIC DISTRICT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO										NAME										DISTRICT ID NO									

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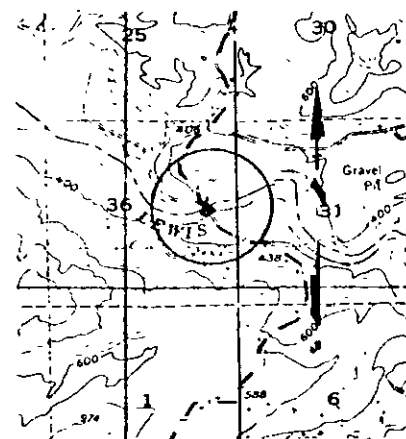
## Description (continued)

rope cables which were manufactured by the Hazard Wire Rope Company of Wilkes-Barre, Pennsylvania, were prestressed to 75 tons. The main stay and back stay cables which were attached to steel castings at the tops of the towers, were discontinuous at the towers. Fastenings were fitted to the castings with links and pins, and approximated the function of a swivel joint. This detail simplified erection, and avoided wear on the main cables, subsequently reducing the cost by permitting the use of smaller-sized cables.

Gravity anchorages were designed. To provide greater resistance to overturning, the base of the anchorages were pyramid-shaped, and were keyed into the rock banks.

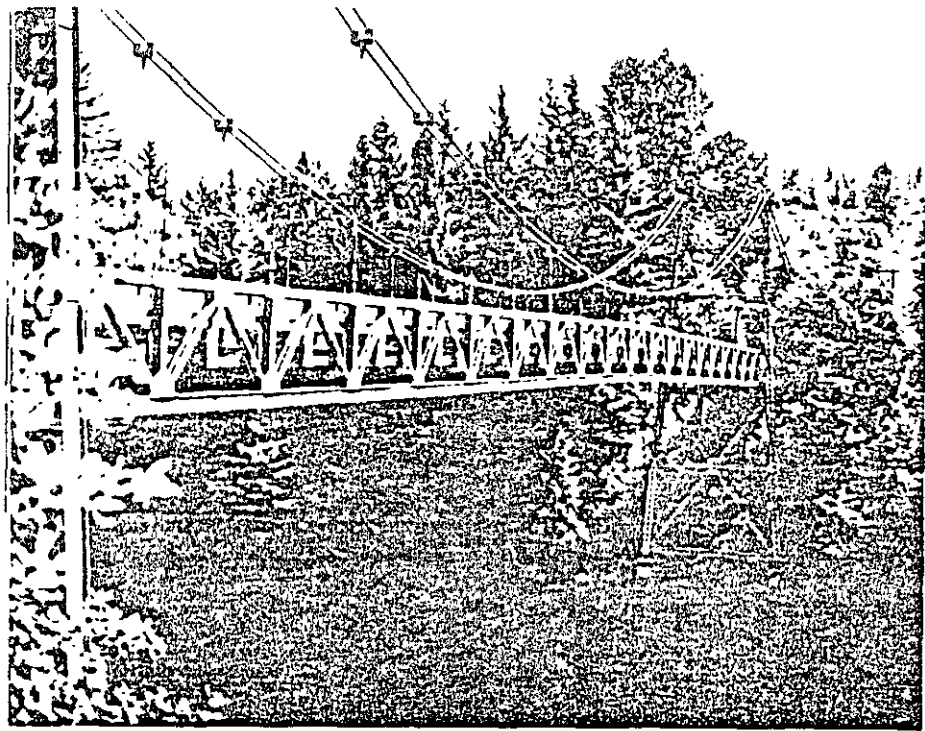
The bridge was designed by Harold H. Gilbert, and was built by the Gilpin Construction Company of Portland, Oregon.

Although there are numerous examples of timber suspension bridges throughout the State, the Yale Bridge is the only example of a short-span steel suspension bridge. The visual impact of the form of the parabolic curve of the cable stretching between two towers, has an unrelenting, universal appeal. However, the short-span steel suspension bridge has remained rare, because cost factors have prevented it from competing with simple steel trusses, cantilevers, or arches for ordinary highway structures.

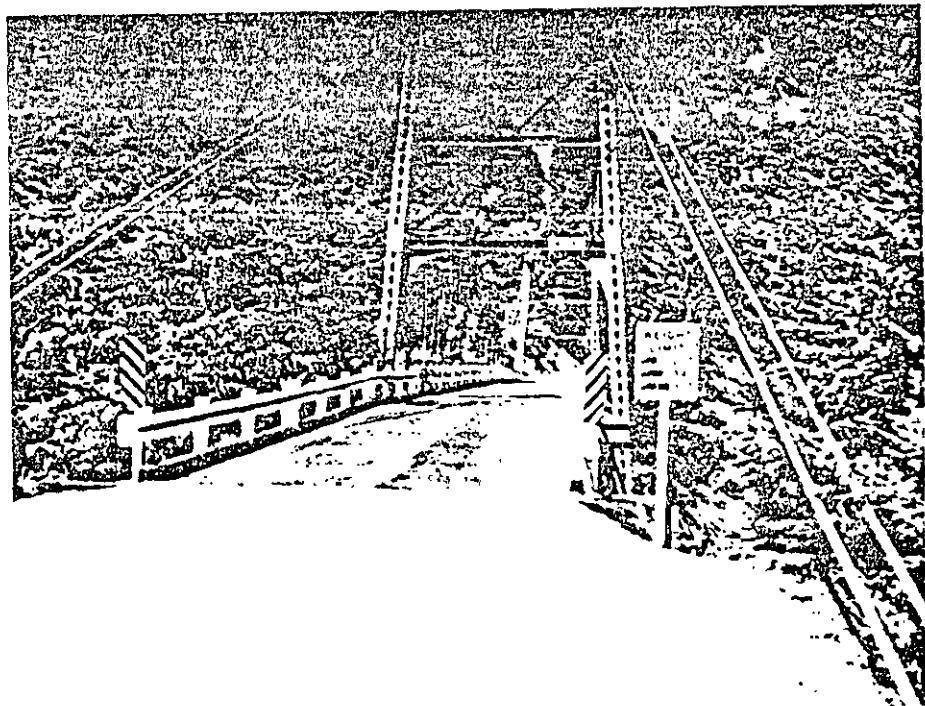


#### REFERENCES (CONTINUED)

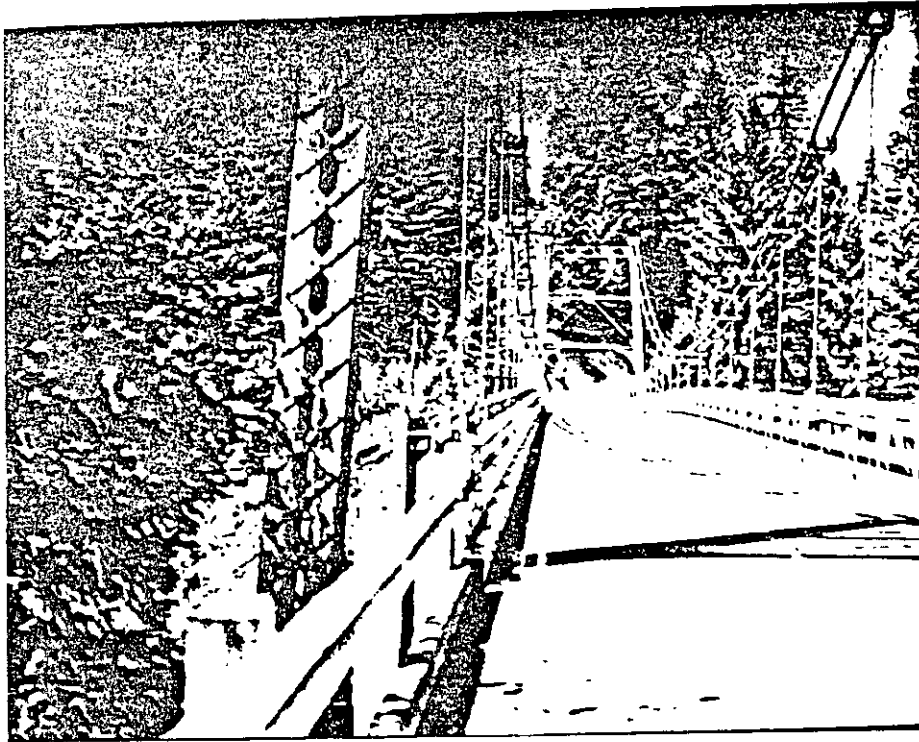
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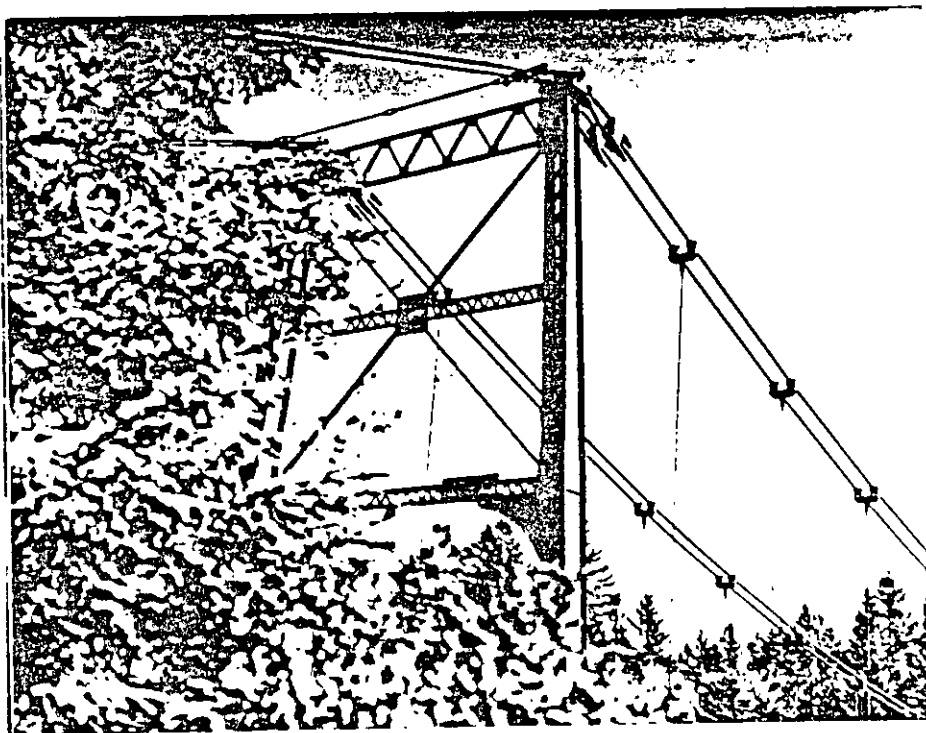
Yale Bridge



Yale Bridge



Yale Bridge



Yale Bridge

YALE BRIDGE

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